



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,364	07/09/2001	Geoffrey Dearnaley	SWRI-2834	5333

23770 7590 10/01/2003

PAULA D. MORRIS & ASSOCIATES, P.C.  
10260 WESTHEIMER, SUITE 360  
HOUSTON, TX 77042

[REDACTED] EXAMINER

OLTMANS, ANDREW L

[REDACTED] ART UNIT [REDACTED] PAPER NUMBER

1742

DATE MAILED: 10/01/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/901,364	DEARNALEY ET AL.
	Examiner Andrew L Oltmans	Art Unit 1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 23 July 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 2-89, 91-124, 126-140, 142-174, 207-210, 212 and 219-243 is/are pending in the application.
  - 4a) Of the above claim(s) 169-174, 207-210, 213-216 and 219-238 is/are withdrawn from consideration.
- 5) Claim(s) 2-22, 44-57, 67-80, 91-109, 126-128, 142-156, 212, 217 and 239-243 is/are allowed.
- 6) Claim(s) 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) See Continuation Sheet are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.
 

If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____

Continuation of Disposition of Claims: Claims subject to restriction and/or election requirement are 2-89,91-124,126-140,142-174,207-210,212 and 219-243.

**DETAILED ACTION**

***Status of the Claims***

1. Claims 2-89, 91-124, 126-140, 142-174, 207-210, 212-207 and 219-243 remain pending in this application. Claims 169-174, 207-210, 213-216 and 219-238 have been withdrawn from consideration for being drawn to a non-elected invention. In view of applicant's amendments, the objection to the claims has been withdrawn and the 112-second paragraph rejection of claims 95-104 and 145-152 has been withdrawn. In view of the amendment to the claims and applicant's arguments, the rejections made under 35 USC 102 and 103 have been withdrawn. However, the rejection under 35 USC 112-second of claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 has been maintained.

***Election/Restrictions***

2. Applicant's election of Group I, claims 1-168, 211, 212, 217 and 218 in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. This application contains claims 169-174, 207-210, 213-216 and 219-238 drawn to an invention nonelected with traverse in Paper No. 8. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 recite a hardness in units of “GPa”, wherein the claims and the specification fail to clearly establish what method of testing (e.g. Brinnel, Knoop, Rockwell, etc...) is used to determine the hardness. The specification remains silent to the type of testing and one of ordinary skill would not recognize “GPa” as indicating a particular hardness from the known prior art.

c. Claims dependent upon the above claims are likewise rejected under this statute.

***Allowable Subject Matter***

6. Claims 2-22, 44-57, 67-80, 91-109, 126-128, 142-156, 212, 217 and 239-243 are allowed.

7. Claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. With respect to claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168, the reasons set forth below are subject to the conditions set forth above in paragraph 7:

Art Unit: 1742

a. A primary reason for the allowance of claims 2-89 and 239 is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method, wherein the method includes all of the following:

- ) providing a substrate selected from the group consisting of a chromium coating and a chromium alloy,
- ) treating the substrate with the claimed composition to form a lubricious outer surface comprising molecules of said substrate and chromium-X molecules comprising said substrate chromium atoms; and
- ) wherein the final unlubricated coefficient of friction for the treated surface is less than that of the initial coefficient of friction.

b. A primary reason for the allowance of claims 91-124 and 240 is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method, wherein the method includes all of the following:

- ) providing a substrate selected from the group consisting of a chromium coating and a chromium alloy,
- ) treating the substrate with the claimed composition to form a lubricious outer surface comprising molecules of said substrate and chromium oxide molecules and wherein the lubricious outer surface consists essentially of chromium oxide molecules comprising substrate chromium atoms; and
- ) wherein the final unlubricated coefficient of friction for the treated surface is less than that of the initial coefficient of friction.

Art Unit: 1742

c. A primary reason for the allowance of claims 126-140 and 241 is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method, wherein the method includes all of the following:

- ) providing a substrate selected from the group consisting of a chromium coating and a chromium alloy,
- ) treating the substrate with the claimed composition to form a final surface comprising a mixture adjacent to the outer surface wherein the mixture comprises substrate molecules and molecules selected from the group consisting of chromium oxide, chromium carbide, and a combination thereof and wherein the chromium consists essentially of substrate chromium atoms; and
- ) wherein the final treated surface has a hardness greater than the initial hardness.

d. A primary reason for the allowance of claims 142-168 and 242 is that the prior art fails to teach or suggest, either alone or in combination, the instantly claimed method, wherein the method includes all of the following:

- ) providing a substrate that is a medical implant having a surface comprising substrate chromium atoms,
- ) treating the substrate with the claimed composition to form a lubricious outer surface comprising molecules of said substrate and chromium oxide molecules and wherein the lubricious outer surface consists essentially of substrate chromium atoms; and

-) wherein the final unlubricated coefficient of friction for the treated surface is less than that of the initial coefficient of friction.

e. A primary reason for the allowance of claims 212, 217 and 243 is the reasoning set forth by applicant in the response filed July 23, 2003 from the last paragraph on page 26 to the first partial paragraph on page 29. The reasons set forth therein, particularly to the application of 36 USC 112, sixth paragraph, apply equally to claims 212, 217 and 243.

### ***Response to Arguments***

9. Applicant's arguments filed July 23, 2003 have been fully considered but they are not persuasive with respect to the rejection of claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 under 35 USC 112, second paragraph.

10. Applicant argues that the examiner has not established that one of ordinary skill in the art would not recognize "GPa" as a unit of hardness; however, the examiner does not find this argument persuasive. The examiner acknowledges the submission of the Zhiyong Li et al. reference and further acknowledges that the reference contains a recitation of hardness measured in GPa (see e.g. Table on page 130 of Zhiyong Li et al. reference). The examiner first notes that the argument that one of ordinary skill in the art would recognize GPa as a unit of hardness is not the matter of the rejection set forth in the previous Office Action. The examiner rejected the units as being indefinite because it is unclear what system is being used to measure the hardness (see previous Office Action):

Claims 23-43, 58-66, 81-89, 110-124, 129-140 and 157-168 recite a hardness in units of "GPa", wherein the claims and the specification *fail to clearly establish what method of testing* (e.g. Brinnel, Knoop, Rockwell, etc...) is used to determine the hardness. [emphasis added]

The examiner acknowledges that GPa is used in hardness measurements, but the recitation of GPa as a unit alone (as is the case in the instant specification, as originally filed), without any reference to the testing system (e.g. Brinnel, Knoop, Rockwell, etc...), is insufficient for one of ordinary skill in the art to determine what hardness is being claimed. The reference provided by applicant further illustrates the lack of clarity with respect to which system is used to determine the hardness on page 130. The reference at page 130, col 1 recites:

“A comparison between the hardness value derived from the penetration of the indenter (Oliver-Pharr method) and that obtained from the residual contact area of the indentation can now be made using Table 1. The difference is quite significant, as predicted by our analysis of cone indentation. For comparison, the Vickers hardness of 52100 steel was measured at 6.7 GPa at a load of 100 gm. This value is close to that obtained using the residual area of the Berkowich indentation (Table 1).”

In this passage, the Zhiyong Li et al. reference refers to 3 different methods of measuring hardness (i.e. Oliver-Pharr method, Vickers and Berkowich) that are measured in GPa and recognizes that the differences are significant. In view of this, it can be seen that without any reference to the manner in which the hardness was measure (as is the case in the instant specification, as originally filed), the units (i.e. GPa) claimed do not clearly indicate to one of ordinary skill in the art what the hardness of the claimed surface is. Therefore, the arguments and evidence submitted by applicant are not found persuasive.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew L Oltmans whose telephone number is 703-308-2594. The examiner can normally be reached 7:00-3:30 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 703-308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661. Any



Andrew L. Oltmans  
Examiner  
Art Unit 1742

September 27, 2003